

Hypervisors, virtualization API, cloud services

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Contents

- Create a bridge interface
- Create new virtual machine
- Problems

Create a bridge interface

- Install bridge-utils package

```
apt-get install bridge-utils
```

- Configure the network interfaces

→ /etc/network/interfaces

- Start the bridge interface

```
ifup br0
```

→ the bridge provides network access to the L2 VM

Configure the network interfaces

```
#auto eth0

iface eth0 inet static

    address 192.168.16.11

    gateway 192.168.16.1

    netmask 255.255.255.0

    network 192.168.16.0

    broadcast 192.168.16.255

auto br0
iface br0 inet static
    address 192.168.16.11
    network 192.168.1.0
    netmask 255.255.255.0
    broadcast 192.168.1.255
    gateway 192.168.1.1
    bridge_ports eth0
```

Level1 VM vs. Level2 VM

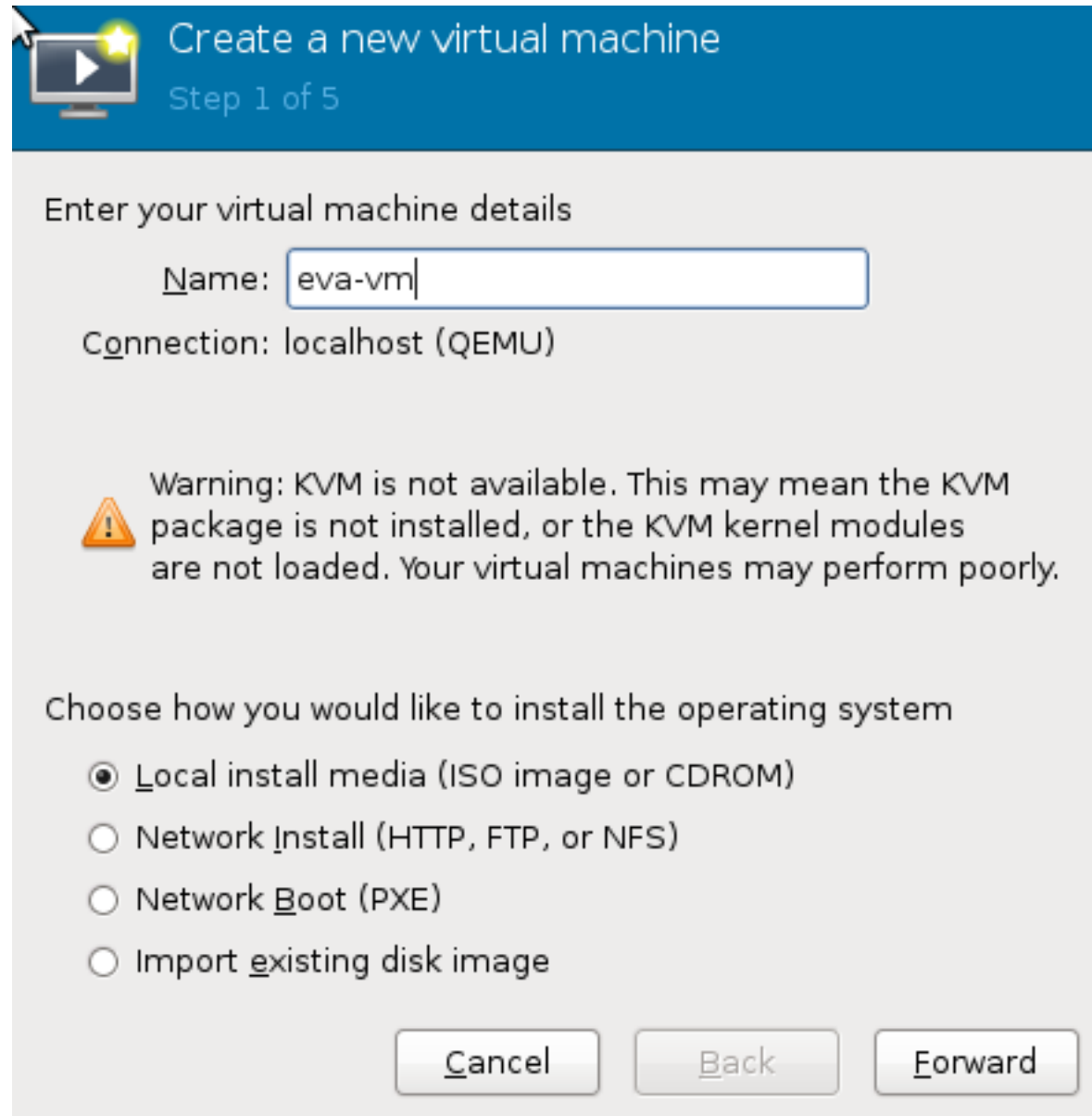
- Level0 (server of the university) provides hardware visualisation (/proc/cpuinfo)
 - ▶ Level1 VM can be created with virtualisation (with kvm)
- Level1 VM does not provide hardware visualisation
 - ▶ Level2 VM has to be created with full emulation (with qemu)

Create new virtual machine

- Install qemu, qemu-kvm, libvirt-bin and virt-manager
- Download “Debian netinst image”
 - Installation media for a debian VM
- Put yourself into the kvm, libvirt and vde2-net groups

```
usermod -a eva -G kvm, libvirt, vde2-net
```

VM installation with virt-manager




The screenshot shows the 'Create a new virtual machine' window in virt-manager, specifically 'Step 1 of 5'. The window has a blue header bar with a play button icon and a star. Below the header, the text 'Enter your virtual machine details' is displayed. There is a text input field for 'Name' containing 'eva-vm'. Below this, it says 'Connection: localhost (QEMU)'. A warning icon (yellow triangle with an exclamation mark) is followed by the text: 'Warning: KVM is not available. This may mean the KVM package is not installed, or the KVM kernel modules are not loaded. Your virtual machines may perform poorly.' Below the warning, the text 'Choose how you would like to install the operating system' is shown. There are four radio button options: 'Local install media (ISO image or CDROM)' (which is selected), 'Network Install (HTTP, FTP, or NFS)', 'Network Boot (PXE)', and 'Import existing disk image'. At the bottom, there are three buttons: 'Cancel', 'Back', and 'Forward'.

Create a new virtual machine
Step 1 of 5

Enter your virtual machine details

Name:

Connection: localhost (QEMU)

 Warning: KVM is not available. This may mean the KVM package is not installed, or the KVM kernel modules are not loaded. Your virtual machines may perform poorly.

Choose how you would like to install the operating system

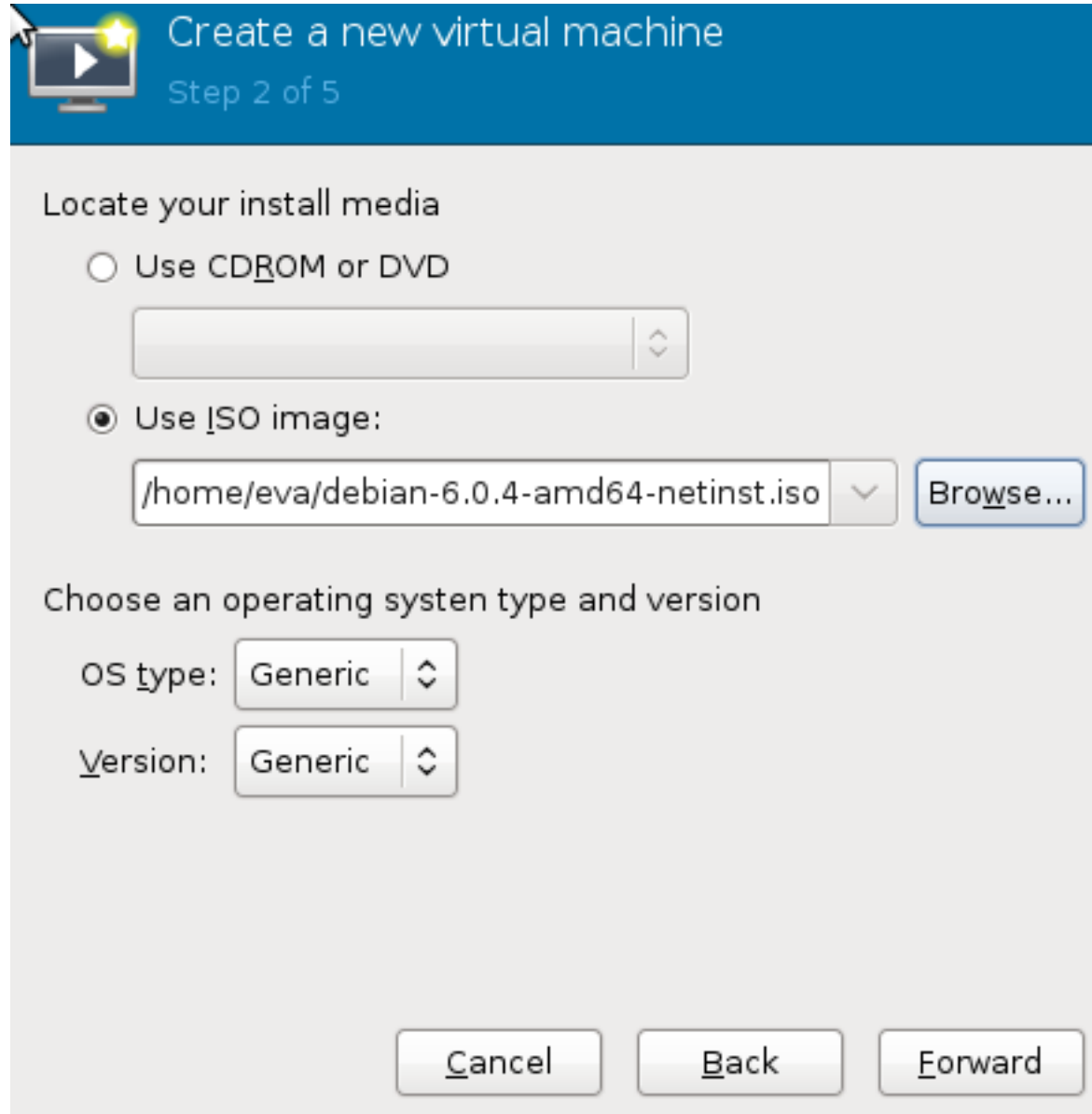
☒ Local install media (ISO image or CDROM)

☐ Network Install (HTTP, FTP, or NFS)

☐ Network Boot (PXE)

☐ Import existing disk image

VM installation with virt-manager



Create a new virtual machine
Step 2 of 5

Locate your install media

☐ Use CDROM or DVD

☒ Use ISO image:

/home/eva/debian-6.0.4-amd64-netinst.iso [Browse...](#)

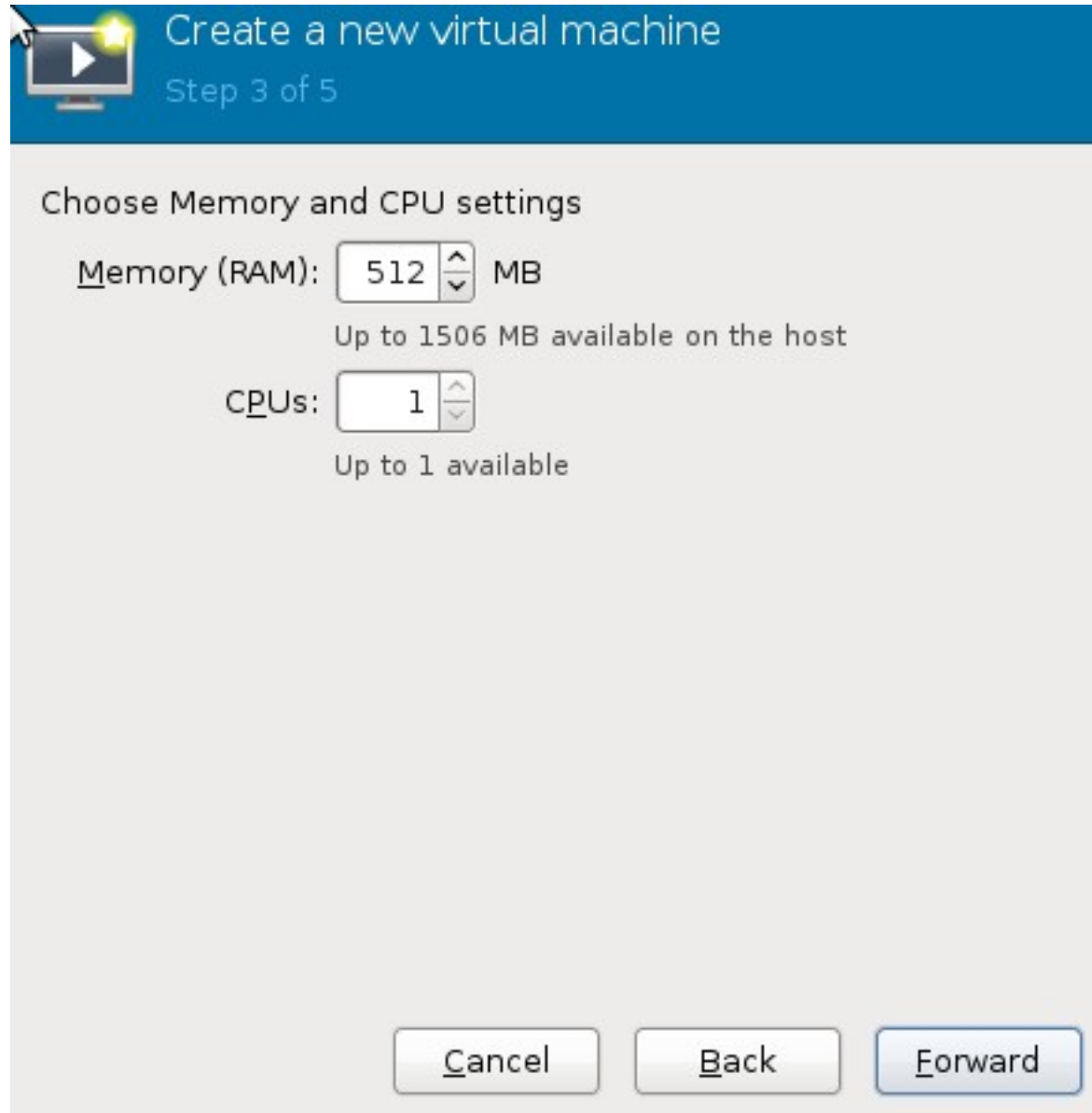
Choose an operating system type and version

OS type: Generic

Version: Generic

[Cancel](#) [Back](#) [Forward](#)

VM installation with virt-manager




Create a new virtual machine
Step 3 of 5

Choose Memory and CPU settings

Memory (RAM): MB
Up to 1506 MB available on the host

CPUs:
Up to 1 available

VM installation with virt-manager

 Create a new virtual machine
Step 4 of 5

☒ Enable storage for this virtual machine

☒ Create a disk image on the computer's hard drive


1.0

↑

↓

 GB

6.7 Gb available in the default location

☒ Allocate entire disk now 

☐ Select managed or other existing storage


Browse...

Cancel

Back

Forward

VM installation with virt-manager

 Create a new virtual machine
Step 5 of 5

Ready to begin installation of **eva-vm**

OS: Generic

Install: Local CDROM/ISO


Memory: 512 MB

CPUs: 1

Storage: 1.0 Gb /var/lib/libvirt/images/eva-vm.img

☐ Customize configuration before install

▼ Advanced options

Specify shared device name 

Bridge name:

☒ Set a fixed MAC address

Virt Type:

Architecture:

Configure IP

- Modify file `/etc/network/interfaces`

```
#iface eth0 inet dhcp

auto eth0

iface eth0 inet static
    address 192.168.16.41
    gateway 192.168.16.1
    netmask 255.255.255.0
    network 192.168.16.0
    broadcast 192.168.16.255
```

- To stop and restart the network connection

```
ifdown eth0 / ifup eth0
```

Domain

- Defined by virt-manager

```
virsh dumpxml eva-vm
```

```
<domain type='qemu' id='1'>
  <name>eva-vm</name>
  <uuid>2e0f3da4-165f-7a86-b09c-8d4b65121224</uuid>
  <memory>524288</memory>
  <currentMemory>524288</currentMemory>
  <vcpu>1</vcpu>
  <os>
    <type arch='x86_64' machine='pc-0.12'>hvm</type>
    <boot dev='hd' />
  </os>
  <features>
    <acpi />
    <apic />
    <pae />
  </features>
```

Problems

- Error during the installation of qemu-kvm

“your system does not have the CPU extensions required to use kvm”

- Restarting the Level 2 VM failed

—► stop (kill) and start the libvirtd – daemon
/etc/init.d/libvirt-bin (kill/start)